

Brushless DC-Servomotors

4 Pole Technology

59 mNm

133 W

Series 2264 ... BP4

Values at 22°C and nominal voltage		2264 W	012 BP4	024 BP4	048 BP4	
1	Nominal voltage	U_N	12	24	48	V
2	Terminal resistance, phase-phase	R	0,05	0,22	0,881	Ω
3	Efficiency, max.	η_{max}	91	91	90	%
4	No-load speed	n_0	21 000	21 100	21 100	min ⁻¹
5	No-load current, typ. (with shaft ø 4 mm)	I_0	0,521	0,261	0,13	A
6	Stall torque	M_H	1 311	1 311	1 280	mNm
7	Friction torque, static	C_0	0,41	0,41	0,407	mNm
8	Friction torque, dynamic	C_V	$1,15 \cdot 10^{-4}$	$1,15 \cdot 10^{-4}$	$1,15 \cdot 10^{-4}$	mNm/min ⁻¹
9	Speed constant	k_n	1 618	809	404	min ⁻¹ /V
10	Back-EMF constant	k_E	0,618	1,236	2,48	mV/min ⁻¹
11	Torque constant	k_M	5,9	11,8	23,6	mNm/A
12	Current constant	k_I	0,169	0,085	0,0423	A/mNm
13	Slope of n-M curve	$\Delta n / \Delta M$	14,8	14,8	15,1	min ⁻¹ /mNm
14	Terminal inductance, phase-phase	L	6	24	91,3	μH
15	Mechanical time constant	τ_m	1,4	1,4	1,45	ms
16	Rotor inertia	J	9,2	9,2	9,21	gcm ²
17	Angular acceleration	α_{max}	1 424	1 424	1 400	$\cdot 10^3$ rad/s ²
18	Thermal resistance	R_{th1} / R_{th2}	1,2 / 12			K/W
19	Thermal time constant	τ_{w1} / τ_{w2}	7 / 693			s
20	Operating temperature range:					
	– motor		-40 ... +125			°C
	– winding, max. permissible		+150			°C
21	Shaft bearings		ball bearings, preloaded			
22	Shaft load max.:					
	– with shaft diameter		4			mm
	– radial at 3 000 min ⁻¹ (3 mm from mounting flange)		20			N
	– axial at 3 000 min ⁻¹ (push / pull)		2			N
	– axial at standstill (push / pull)		20			N
23	Shaft play:					
	– radial	≤	0,015			mm
	– axial	=	0			mm
24	Housing material		stainless steel			
25	Mass		140			g
26	Direction of rotation		electronically reversible			
27	Speed up to	n_{max}	34 500			min ⁻¹
28	Number of pole pairs		2			
29	Hall sensors		digital			
30	Magnet material		NdFeB			
Rated values for continuous operation						
31	Rated torque	M_N	59	59	57,9	mNm
32	Rated current (thermal limit)	I_N	11,9	6	2,94	A
33	Rated speed	n_N	20 460	20 490	20 500	min ⁻¹

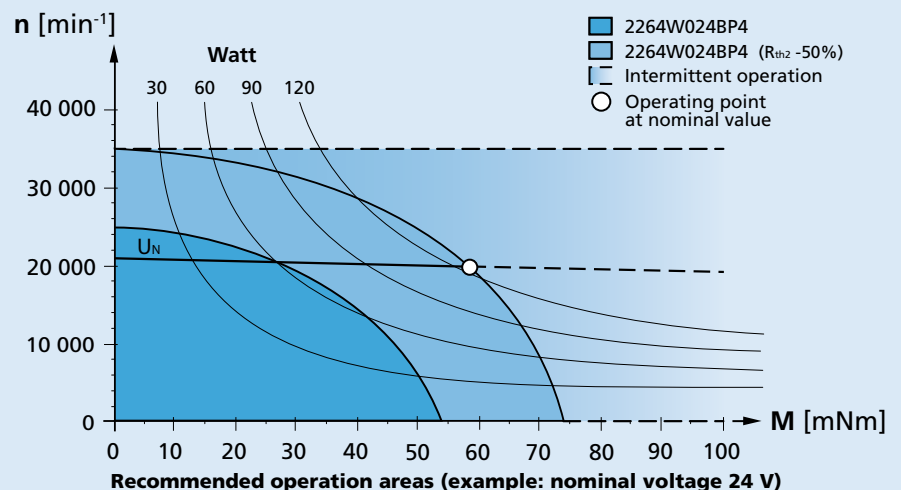
Note: Rated values are calculated with nominal voltage and at a 22°C ambient temperature. The R_{th2} value has been reduced by 50%.

Note:

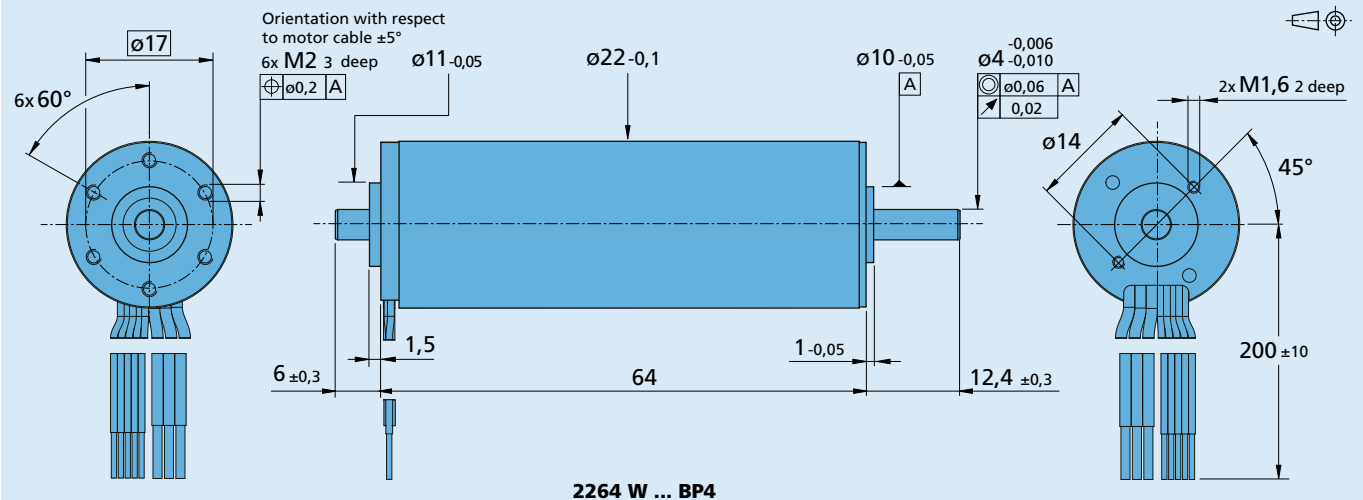
The diagram indicates the recommended speed in relation to the available torque at the output shaft for a given ambient temperature of 22°C.

The diagram shows the motor in a completely insulated as well as thermally coupled condition (R_{th2} 50% reduced).

The nominal voltage (U_N) curve shows the operating point at nominal voltage in the insulated and thermally coupled condition. Any points of operation above the curve at nominal voltage will require a higher operating voltage. Any points below the nominal voltage curve will require less voltage.



Dimensional drawing



Option, cable and connection information

Example product designation: **2264W024BP4-3692**

Option	Type	Description	Connection	
Y158	Shaft end	Motor without second shaft end	Function	Colour
3692	Controller combination	Analog Hall sensors for combination with Motion Controller MC 5010	Phase C	yellow
			Phase B	orange
			Phase A	brown
			GND	black
			U _{DD} (+5V)	red
			Hall sensor C	grey
			Hall sensor B	blue
			Hall sensor A	green
			Standard cable	
			3 single wires, material PTFE, AWG 20, Phase A/B/C	
			5 single wires, material PTFE, AWG 26, Hall A/B/C, U _{DD} , GND	
			Note	
			With the connection cable the terminal resistance is increased typ. by 0,008 Ω .	

Product combination

Precision Gearheads / Lead Screws	Encoders	Drive Electronics	Cables / Accessories
22GPT 26/1R 32A 32ALN 32GPT 32/3R	IE3-1024 IE3-1024 L IERS3-500 IERS3-500 L IER3-10000 IER3-10000 L AES-4096 L	SC 5008 S MC 5010 S	To view our large range of accessory parts, please refer to the "Accessories" chapter.